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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,555	08/18/2003	Stephen J. Miller	T-6282	4922

34014 7590 12/26/2006
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EXAMINER

SAMPLE, DAVID R

ART UNIT	PAPER NUMBER
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1755

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/26/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/643,555

Applicant(s)

MILLER ET AL.

Examiner

David Sample

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-19 and 24-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2-10 is/are allowed.
- 6) ☒ Claim(s) 11-19, 25, 26 is/are rejected.
- 7) ☒ Claim(s) 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Any rejections and/or objections, made in the previous Office Action, and not repeated below, are hereby withdrawn.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

Claims 11-19, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kulkarni et al. (US 6,508,860) in view of Verduijn et al. (US 2002/0082460).

Kulkarni et al. (US 6,508,860) discloses a mixed matrix membrane comprising particles of a treated molecular sieve dispersed in a continuous phase consisting essentially of a matrix polymer (column 2, lines 35-40). The molecular sieve may be silanated (column 10, lines 40-60). Suitable molecular sieves include SSZ-13, which may be first treated by cation exchange to remove sodium therefrom (column 6, lines 20-65). The reference teaches that the membrane is formed by dissolving the polymer in a suitable solvent, followed by dispersing the silanated molecular sieve in the resulting- polymer solution (column 13, lines 35-45). The membrane is then heated to remove the solvent, resulting in a mixed matrix membrane (column 13, lines 45-65). The reference does not disclose that the molecular sieve is water washed, until filtrate having the claimed conductivity is obtained.

Verduijn et al. discloses a method of making a silicon containing zeolite in which the zeolite is washed until the wash water has a conductivity of 25 $\mu\text{S}/\text{cm}$ or 50 $\mu\text{S}/\text{cm}$ (i.e., 25

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mohs/cm or 50 mohs/cm). See Example 1, paragraph [0113]; Example 2, paragraph [0123]; Example 4, paragraph [0137]; and Example 5, paragraph [0144].

As to claim 25, Verduijn et al. discloses calcining the water washed molecular sieve. Id.

As to claims 15 and 26, Verduijn et al. discloses that the zeolite may be silanated. See paragraphs [0079] to [0081].

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have employed the zeolite of Verduijn et al. in the method of Kulkarni et al. because Kulkarni et al. discloses employing silanated zeolites in membranes, and Verduijn et al. discloses silanated zeolites.

Response to Arguments

Applicant's arguments filed October 12, 2006 have been fully considered but they are not persuasive.

Applicants argue that the combination of references would not have been obvious to one of ordinary skill in the art at the time the invention was made. In particular, applicants argue that Verduijn et al. does not disclose that its inventive zeolites are useful in gas separation applications, and Kulkarni et al. does not suggest using a coated zeolite such as the zeolite of Verduijn et al.

The coated zeolite of Verduijn et al. is coated in that one zeolite coats another zeolite. See the abstract of Verduijn et al. For example, Catalyst A of Verduijn et al. is a silicalite coated ZSM-5. See paragraph [0102] of Verduijn et al. Kulkarni et al. discloses that both silicalite and ZSM-5 are useful in the inventive gas separation membrane. See col. 4, line 67, and col. 7, lines

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5-8 Kulkarni et al. Therefore, it would have been obvious to one of ordinary skill in the art to have employed any of the zeolites mentioned by Kulkarni et al. in the gas separation membrane, including the zeolite mixtures described by Verduijn et al.

Allowable Subject Matter

Claims 2-10 are allowed. Claim 24 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

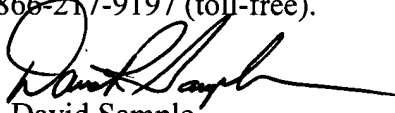
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Sample whose telephone number is (571)272-1376. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (572)272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


David Sample
Primary Examiner
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